Sidebands

W2EGB

The Newsletter of the EAST GREENBUSH AMATEUR RADIO ASSOCIATION

www.egara.club

December 2017

President - Tom Scorsone, KC2FCP
Vice-President - Ridge Macdonald, KB2HWL
Secretary - Steve VanSickle, WB2HPR
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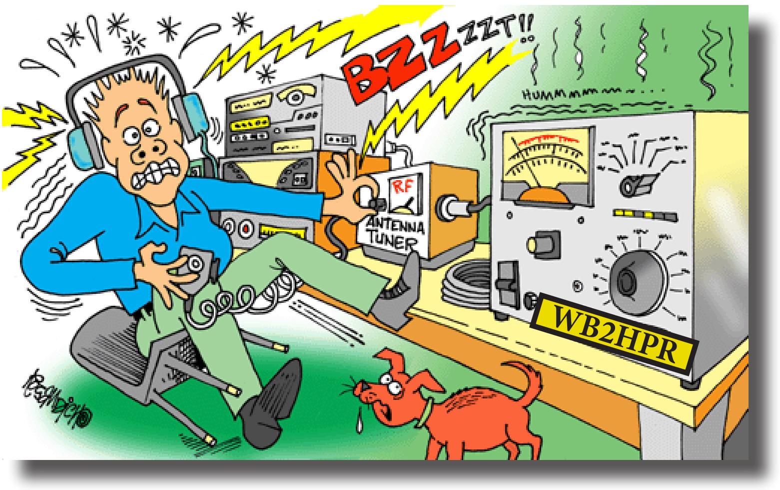
Hey! Buzz Off! Or How I Tracked Down Some Pesky RFI

By Steve VanSickle, WB2HPR

Have you ever switched on your radio – only to be greeted by a loud buzzing noise? This happened to me about six months ago when I prepared to tune up the rig on 75 meters. We are taught to always listen first, but try as I might, I could only hear a loud buzz, coming and going every 45 seconds -- or so it seemed. I t was so loud that it was impossible to make a QSO. I tried the DSP noise reduction, the noise blanker – both to no avail!



The very next evening, I tried, once again, to join in the nightly SSB round table on 75 meters, and all was well until the sun set. Then the same noise began again –- in earnest. I was finally able to minimize the noise by switching to another dipole antenna, and by utilizing the hardware NB circuitry.

(continued on page 3)

A Free Radio from Santa Highlights EGARA Holiday Party

This year's Holiday Party will include Santa giving one lucky club member a free dual-band VHF/UHF portable HT radio!

Everyone who attends the party will be given a free raffle ticket for the drawing which will be held following dinner at Moscatiello's Italian Restaurant on Route 4 in Troy. The party will kick off at 6 pm. Dinner will be Dutch Treat and off the regular menu.

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"We look forward to a nice turnout as we gather again to celebrate the Christmas season with good friends and good food," said EGARA President Tom Scorsone, KC2FCP. "I'm also pleased that we'll be giving away a multi-function HT radio donated by our Secret Santa."

The radio, a Beofeng UV-5R, comes with accessories that include an 1800 MAH lithium-ion battery, belt clip, hand strap, earpiece, and drop in AC charger. It features 128 channel memory and RF power is switchable between 4W and 1W.

If you plan to attend, please RSVP to **W2RBJ@outlook.com** by December 8th.

Annual Holiday Party! Mosciatello's at 6 pm - December 13th!

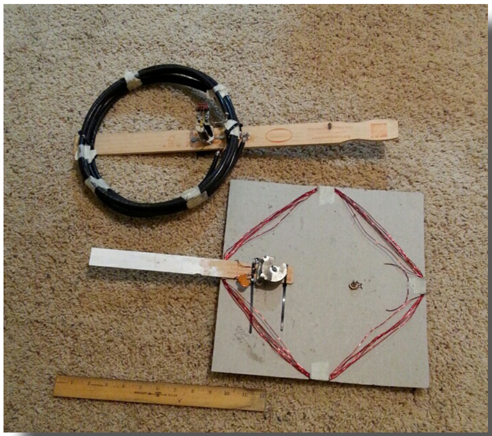
Tracking Down Pesky RFI

(continued from page 1)

At last, I was able to join in the conversation as the noise continued on and on, throughout the ensuing months. Needless to say, the intermittent buzzing made for some difficult listening conditions.

By accident, I was able to locate the noise source after reading about the use of magnetic loop antennas. I wanted to zero in on a distant station. Using some salvaged components, I constructed a 75 meter loop antenna in order to take advantage of its inherent directional characteristic. I soon realized that I could use the same antenna to pinpoint a noise source as well. After several attempts, I found that the buzzing noise was originating from a point either due north or due south of my location. (The loops have a 180 degree pattern).

I had also researched the noise on the web and found sample recordings on the ARRL web site at **http://www.arrl.org/utilities**. This made it possible to identify the noise as originating from a high pressure sodium street light which was cycling on and off. But looking out the shack window in either direction, I could not see a street light exhibiting any odd behavior.



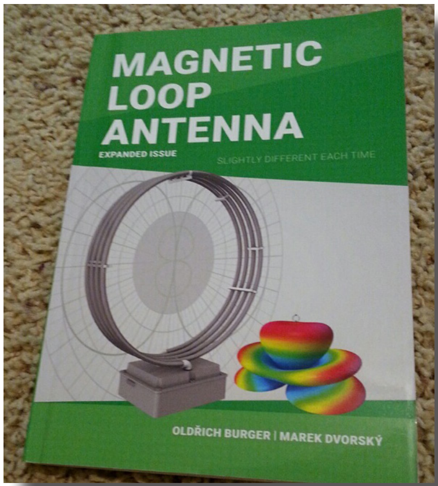
Steve's homebuilt magnetic loop antenna used for finding RFI

As summer faded away to fall, I still was unable to find any defective street lights nearby. It wasn't until late fall, when the leaves fell from my neighbor's red maple tree, that I then observed the offending light fixture!

As I watched the light one night, while listening on the 75 meter band, its behavior was in perfect synchronization with the received buzz! As the light grew dim and cycled off, the buzz began – faint at first, the building to a very high level until the light came back on. Then the noise stopped abruptly. This on-off cycle continued through the night. During day time hours, the noise ceased entirely – only to return after sundown.

A search on the web led me to the National Grid website, where there is a link to report defective street lights. You'll find it at: **https://www1.nationalgridus.com/Streetlight**. I supplied the required information and gave them the location and the pole number. National Grid did send a follow-up email to inform me that the repairs were scheduled. After about a week, the buzzing ceased, and the street light was repaired and performing normally.

Now 75 meters SSB and AM operation are a real pleasure – the buzz is GONE!



Want to learn more about directional loops? Come to the January EGARA club meeting. You can see one up close and try it out. I'll also bring a recording of the noise that completely blocked out 75 meters. You can also check out a cool book about magnetic loops. You will see just how easy they are to build. Also, check out this month's Pro Tips on page 10 for a list of some common sources of RFI.

Hope to see you at our January meeting to learn more!

About the Author: Steve VanSickle, WB2HPR, is the Secretary of EGARA. For many years he designed, built and maintained two-way radio communications systems. Steve's extensive knowledge of electronics is often called upon by club members who are looking for information on how to solve problems or improve their shacks.

A Mini That Does Big Things

By Bryan Jackson, W2RBJ

They say that "good things comes in small packages" and the Mini-60 antenna analyzer seems to ring true to that old adage. It's a piece of ham gear that's roughly the size of a package of cigarettes, but it can tell you a lot about your antennas and transmission lines. I demonstrated it at EGARA's November meeting, but if you missed it, here's a recap.

First, a little history. The Mini-60 is actually based upon the SARK-100, an antenna analyzer developed by Melchor Varela, EA4FRB, of Madrid, Spain. Varela originally sold his SARK-100 on the Internet as a kit. He discontinued production in 2011 but provided detailed information online, including the schematics. Soon it was being cloned by a Chinese manufacturer and sold as the Mini-60. A Blutooth option was also made available.

The Mini-60 can send real-time graphical antenna data to an Android tablet or smartphone using its optional built-in Bluetooth module

The Mini-60 can analyze antennas from 160 meters to 6 meters. It can check for the resonance, bandwidth, and SWR in an easy and fast way. The meter also measures the resistance, reactance, and the magnitude of the impedance. This information can be displayed on the unit's 2-line text display, or as a graphical display on an Android tablet or smartphone via the optional built-in Bluetooth module.

The Mini-60 is built solidly with a sturdy metal case. There is a single PL-259 connector for attachment of the antenna or feedline, a single power switch, a mini-USB port and an external power port for 12V DC. When powered up it displays frequency, SWR and impedance magnitude by default. Other modes include complex impedance, capacitance, inductance and off mode. The off mode can be used to measure any RF fields in the vicinity.

Frequency coverage is from 1Mhz to 60Mhz in 13 bands. Pressing the Scan button will scan across the selected frequency band and will beep if an SWR match below 2:1 is found. After a successful scan, the device will display the bandwidth and be set on the frequency of the minimum SWR found. The Set button allows the device to adjust step size, suspend timeout, calibration and the PC link functions. SWR can be measured up to 10:1.

The analyzer design is based on a DDS signal generator, a PSoC microcontroller, and a reflectometer for the impedance measurements. The features and flexibility of the PSoC microcontroller allows for a simple hardware design. The design also provides an USB interface to allow firmware updates and downloading of the real-time measurements to a PC. I have only used the Mini-60 with Android devices through the Bluetooth link and it meets my needs perfectly. Some may find the PC software provides additional information of use to them.

However, a word of advice. The Mini-60 is readily available on Ebay, but be aware it comes in several different flavors. The basic unit, which can be found for as little as $60, does NOT include Bluetooth or the internal Li-Ion battery. This means you will need an external 12 volt power supply and a Windows computer to view any graphical data, although you will be able to see data on the unit's 2-line text display. Another version includes Bluetooth, but not the battery. This is the one I bought for around $100, but I soon realized I should have gotten the one with the internal battery. I was able to find a 3.7 volt Li-Ion battery that fit inside the case, but it was hassle. For around $130 you can get the Mini-60 with Bluetooth and the battery and I would recommend this configuration. Recharging the internal battery can be done through the USB port.

Finally, another word of caution. When you receive your Mini-60 you will find it comes with NO documentation or software. None. Luckily, a quick Google search will lead you to sites that offer the manual (written for the SARK-100, but applicable to the Mini-60 too), as well as the Android (get the updated version at **http://www.die-jetzis.de/downloads/MINI60DH1KLM1.0.apk**) and PC software. The original SARK-100 archive can be found at **https://sites.google.com/site/ea4frb/antenna-analyzers/sark100/Archive.**

This may be the poor man's analyzer, but I have no regrets.

Nine of the Weirdest Items in the Radio Shack Bankruptcy Auction

Radio Shack called it quits once and for all in late June, closing all of its stores, including several in the Capital District. As part of its bankruptcy, the company auctioned off many artifacts from its 95 year history. Among those items were these from its corporate headquarters:

- "Put The Hammer Down", a compilation record of country songs about truckers, was produced by Radio Shack in the 1970s in the midst of the CB Radio craze—a craze that, obviously, Radio Shack benefited from. Turns out that it apparently sold well enough to receive a gold record. Yes, "Convoy" is on the record.

- A very large answering machine. Do you remember when answering machines were novel technology, and the size of a breadbox?

- An array of the company's catalogs, which highlight the company's formidable product lines over the years;

- A variety of art pieces that had been hanging around the company's offices, many of which are artistic takes on coffee cups. Believe it or not, there were a lot of random coffee cup paintings scattered about the company's headquarters. They joined other weird corporate art, like the company logo in the middle of a hurricane. There was also A 5-foot-wide oil painting of a Radio Shack store painted by the well-regarded artist Mark Trujillo.

- A box of remote controls... just like the box of remotes that's probably lying around your house.

- Million Dollar Manager cufflinks... given to store managers who reached the million-dollar level without doing any actual work.

- Autographed biking jerseys reflecting the not-long-ago period that Radio Shack sponsored a bicycle racing team led by Lance Armstrong. That, infamously, didn't end well. Other weird sports-related items in the auction included a signed picture by Derek Jeter.

- Re-branding Poster. "Our friends call us the Shack." No. No, they don't. This re-brand never quite worked, except for people making fun of the company. But at least the corporate archives preserved it.

- And most depressingly, signs from the Tandy Store and Museum—that's right, the company is so dead that even the signs for its corporate museum were sold.

The New Year is Almost Here!

And it's not too early to make it a great year by renewing your EGARA membership now!

We've also made it easier than ever. Pay your dues on-line using our safe and secure PayPal link. You;ll find it at:

https://www.egara.club/pay-dues

Shortwave Station Bends But Doesn't Break

WRMI in Okeechobee scrambled back to service despite hurricane damage

By James Careless, Radio World

Among the many victims of Hurricane Irma in September was the transmitter/antenna farm of Radio Miami International, WRMI in Okeechobee, located on a cattle ranch 40 miles inland from Port St. Lucie on Florida's Atlantic coast.

On Sunday Sept. 10, Irma's roaring winds tore across the flat plains housing WRMI's 23 antenna systems, comprising a total of 68 towers — the largest commercial shortwave radio transmission site in the United States. The hurricane-force winds snapped one of WRMI's towers in half, leaving the torn metal lattice dangling suspended in the transmission lines. A second tower was bent in half like a paper clip. Many transmission lines radiating from WRMI's central 16,000-square-foot transmitter building to the arrays also were knocked down along with the telephone poles that supported them.

The post-Irma scene looked as if a drunken giant had wandered across the cattle ranch and tripped repeatedly, taking down whatever he had stumbled across.

Add a main power outage that lasted from Sunday to Wednesday, and WRMI was definitely hammered by Hurricane Irma. Yet the station managed to stay on air throughout the chaos, thanks to the efforts of WRMI Facility Manager Pat Travers and five others who hunkered down in the reinforced concrete transmitter building during the storm.

"We have a 25 kilowatt diesel generator on site, which powered a 100-watt shortwave transmitter feeding a dipole antenna," WRMI General Manager Jeff White said. "This kept WRMI's programming on air to the world 24/7 throughout Irma."

Granted, 100 watts has nothing on 100,000 watts, the power rating common to most of WRMI's 14 SW transmitters. To cover the world successfully by bouncing radio signals off the ionosphere, serious transmitter power is required.

"But as any amateur radio operator will tell you, you can cover a lot of ground with 100 watts," White quipped. "We received reception reports from listeners as far away as southern Ontario and Sacramento, Calif., who had picked up our 100 watts Irma transmissions."

MEGA TRANSMISSION SITE

Built originally by Christian broadcaster WYFR (Family Radio) to reach the world, the Okeechobee transmitter site was bought by WRMI in 2013.

One of WRMI's bent towers

Previously, the commercial shortwave station founded by White and his partner Kiko Espinosa had been broadcasting from Miami with a 50,000-watt SW transmitter using either a corner reflector antenna beaming 160 degrees toward the Caribbean and Latin America, or a yagi-style log periodic antenna beaming 317 degrees toward North America. The two original antennas were used at different times of the day, depending on which part of the hemisphere was being served by the station's signal.

With the acquisition of the Okeechobee antenna farm in 2013, WRMI's transmission options became global; the station subsequently shut down its Miami transmitter site while retaining its studio and office in that city.

STORM PATROL

Spreading out from the transmitter building in a hub-and-spoke pattern of antenna arrays, antenna switchers and feeder lines, the station's transmission infrastructure is an RF engineer's fantasy of curtain array, log periodic and double rhombic antennas collectively aimed at 11 regions of the globe. Add 14 high-power SW transmitters, and WRMI has a near-perfect platform for transmitting its own English and Spanish programming worldwide and for leasing airtime to third-party broadcasters.

The threat of hurricanes is nothing new to Jeff White.

"I have operated stations through a few of them," he said. "So I know what it takes to prepare for a hurricane, and to keep things going when it hits and during the recovery process afterwards."

Fortunately WRMI's transmitter building is strong enough to survive a hurricane. The original roof had been damaged by a previous storm when Family Radio owned this site.

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EGARA November Meeting Minutes

- The November meeting of the EGARA was called to order at 7:19 PM by President Tom Scorsone, KC2FCP.
- There were no minutes taken during the previous meeting because the mini hamfest was held in October.
- The Treasurers report was presented by Treasurer Bryan Jackson and approved by the membership.
- The annual EGARA Christmas Party is scheduled for 6 pm on December 13th at Moscatiello's Italian Restaurant. A dual band radio will be given away free at the dinner.
- The tool and turkey raffle was conducted by Ridge Macdonald. The turkey was won by member Bob Stanley, W2RBS.
- The possibility of a combined field day was discussed. Members were very positive about this idea and President Scorsone will present the idea to a neighboring club.
- Ridge Macdonald, KB2HWL, discussed this years SET results. He said it will be bigger and better next year due to greater participation. Also, Ridge noted that the previous Albany county RACES repeater location has been vacated, and a new repeater is in place at St. Peters hospital. The new frequency is 146.640 with a tone of 100 Hz. The repeater is open to all. Also, the Rensselaer county RACES repeater on Samaritan hospital is being repaired and will return to service on 146.760 with a tone of 103.5 Hz.
- Following the business and information meeting, Bryan Jackson, W2RBJ gave an A/V presentation on the SARK-100 / Mini 60 antenna analyzer. Bryan demonstrated the analyzer using a portable 40 meter antenna, and showed a video which showcased all of the features of this unique piece of equipment.
- Refreshments were on hand for all in attendance.
- The meeting adjourned at approximately 8:50 pm.

Make a New Year's Resolution!

Upgrade Your Technician or General Class License at the next VE Exam Session

January 6th at 10 am

East Greenbush Community Library

On the Beam
News & Notes

ARRL Moves Forward on Expanded Privileges for Technician Licenses

Technician class amateurs would be given expanded operating privileges under a plan now under consideration by the ARRL.

Under the plan developed by ARRL's Entry-Level License Committee, Technician class hams would get expanded phone and digital access on 80, 40, and 15 meters, where Technicians already have CW access. Committee Chair Tom Frenaye, K1KI, pointed out that while the Amateur Radio population is growing, the annual rate of growth has stagnated at about 1%. "There is a general consensus…that 'something needs to happen,'" the committee's report said, noting a generally favorable attitude toward attracting newcomers.

Frenaye will work with ARRL General Counsel Chris Imlay, W3KD, and International Affairs Vice President Jay Bellows, K0QB, to develop the specifics of the proposal that will be presented to the FCC. This is expected to be completed in time for review by the full ARRL Board of Directors at its January meeting.

Frenaye explained this week that enhancing the Technician license would be "an immediate step that can take place with little FCC impact, since the question pool would not need to be changed." He pointed out, however, that this approach "does not rule out longer-term consideration of a new entry-level license." The Entry-Level License Committee had recommended both steps in its report to the Board last summer.

A random survey of ARRL members found that a clear majority of those surveyed favored a revision to the Technician rather than a new entry-level license, according to the committee's report. It also noted that this would require no change to the Technician examination, which already covers more material than necessary for an entry-level examination.

American Red Cross Hails "New Partnership" with ARRL Following Puerto Rico Deployment

The American Red Cross says a new level of partnership now exists between it and the ARRL following the League's deployment of its "Force of 50" hurricane recovery volunteers who went to Puerto Rico to provide emergency communications following the hurricane that left the island devastated.

Harvey Johnson, Red Cross Senior Vice President for Disaster Cycle Services wrote ARRL President Rick Roderick, K5UR, and ARRL CEO Tom Gallagher, NY2RF, to express his organization's gratitude for "all your amazing volunteers for the unwavering commitment demonstrated during the response to this unprecedented disaster in Puerto Rico." Johnson said the team's actions "made a significant difference" in the lives of those affected.

"This mission marked an exciting new path for our two organizations with it being the first time we deployed ARRL volunteers to a Red Cross relief operation," Johnson wrote. "I continue to hear incredible stories about how the ARRL volunteers supported individuals, communities, and partner organizations during their time in Puerto Rico." ARRL and the American Red Cross have a long-standing memorandum of understanding (MOU) to cooperate in emergencies and disasters.

"It was a complex cooperation in an austere environment, and the mission certainly had its challenges," Johnson continued. "While we have much to learn from this new experience and areas to improve upon, we remain committed to working with you, ARRL, and your cadre of talented volunteers."

Johnson said the ARC looks forward to working together with ARRL to "serve those impacted by disasters."

Shortwave Station Bends But Doesn't Break

(continued from page 5)

But they replaced it with a super-strong roof that could resist high winds and did just that during Irma's onslaught.

Meanwhile, White always has lots of diesel fuel on hand to keep the station's 25 kW generator running, "many five-gallon water jugs for us and our water-cooled transmitters," and plenty of gasoline for the station's trucks. "We have an old Florida Power truck with a cherry-picker for putting up telephone poles and attaching wires to them," he said. "You need to have your own to maintain a site of this size."

WRMI tower snapped in half

With plenty of food supplies and bedding, the WRMI crew hunkered down at the antenna site.

"At 4:30 on Sunday afternoon, the winds starting whipping up," White said. "Next the alarm bells started ringing, which tell us when transmission paths have been interrupted due to fallen lines. Then we lost electricity from outside, knocking our main transmitters offline. So we powered up the generator to keep the lights on, turned on the 100-watt backup transmitter and stayed on air via the dipole antenna as best we could."

FALLOUT AND RECOVERY

The two towers wrecked by Irma are part of WRMI's 44 degree double rhombic array aimed at Europe and the Middle East. Before the storm, the station transmitted on 15770 kHz on this array. It delivered a strong, reliable signal to this market on this channel.

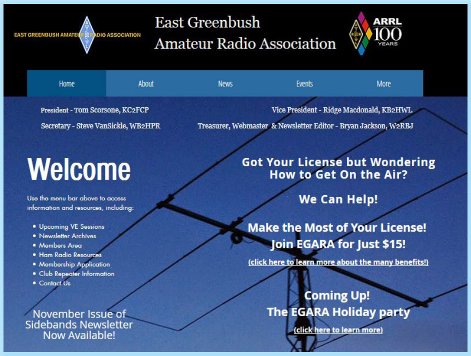
"With the loss of the 44 degree array, we have switched to other arrays to cover Europe and the Middle East on 7780 kHz and 11580 kHz," said White. "I don't know when we will be able to afford to replace the two towers Irma damaged, so this will have to do for now."

The fallen transmission lines and poles were not a big issue. "Right after the storm, our crew got out in our used Florida Power truck and started putting things right," White said 12 days afterwards. "Today, almost everything is back in place — and 13 of our 14 transmitters are already back on air."

WRMI's antenna farm had external power restored on Sept. 13. "Our Internet was down for a while after that," said White. "This left us trying to link up to the outside world using a microwave Internet link, which was problematic."

Still, not long after Hurricane Irma did its worst to WRMI's Okeechobee antenna farm, this commercial SW broadcaster was back in business.

"We have yet to figure out how to repair the 44-degree double rhombic array and its two destroyed towers," said White. "But other than that, Radio Miami International has bounced back from Irma quite quickly."



Stay Up To Date with the EGARA Website!

Wondering when the club's next event is scheduled? Looking for Amateur Radio resource links? Upcoming VE exam session? Or maybe you want to download a previous edition of the club's newsletter.

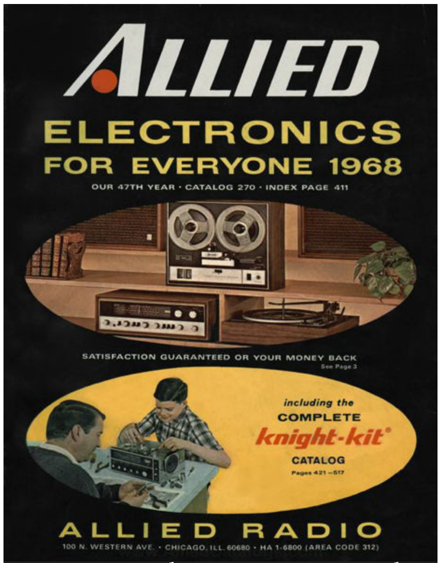
All this and more are just a click away when you visit the club's website.

www.EGARA.club

Catalogs Are About Possibilities

By Dan Romanchik, KB6NU

When I was a kid, I used to regularly get catalogs, such as the Allied Radio and Lafayette Radio catalogs and pore over them for hours. Even if I couldn't afford to buy the latest Knight-Kit or Lafayette shortwave radio, I could imagine what it would be like. These catalogs were chock full of possibilities.



I spent many hours poring over the Allied and Lafayette catalogs as a kid. This one is from 1968, when I was 13 years old.

So, you can imagine how I felt when, last Thursday, I found both the Autumn/Winter 2017 DX Engineering catalog and the 2018-2019 Newark Electronics/Element14 catalog in my mailbox.

DX Engineering has really taken the amateur radio world by storm over the last ten years or so. I probably don't have to tell you about that. If you're an active amateur radio operator, I'm sure that you have heard about—and probably ordered from—DX Engineering.

I think that DX Engineering did a very smart thing by investing the money in a print catalog. There's something about browsing a print catalog that is just more satisfying than browsing on-line. DX Engineering has just about everything you need to have fun with amateur radio.

The Newark/Element14 2018-2019 catalog is a completely different beast. Amateur radio operators are only a small part of Newark/Element14's market, but one nonetheless. They have, for example, attended the Dayton Hamvention for many years.

As such, the catalog is not a "ham radio" catalog, but if you build stuff at all you'll find something of interest in its 1,799 pages. It includes nearly any kind of electronic part that you might need.

The section that might you might want to start with is the "makerspace" section. In this section, you'll find Raspberry Pis, BeagleBones, and even micro:bits. They really have everything, though, including passive and active components, connectors, cable, and enclosures.

Like I say, these catalogs are all about possibilities. You can search each company's website and find the parts they carry quickly and easily, but that experience is just not the same as browsing a print catalog and daydreaming about what you might find there.

So, get your own copies—they're free—and page through them. I'd be surprised if you didn't run across something that you didn't know about before, and it gave you some ideas about your next amateur radio project.

About the Author: Dan, KB6NU, is the author of the "No Nonsense" amateur radio license study guides and blogs about amateur radio at KB6NU.Com. When he's not browsing through catalogs, he teaches ham radio classes and operates CW on the HF bands. You can email him at cwgeek@kb6nu.com.

CALENDAR

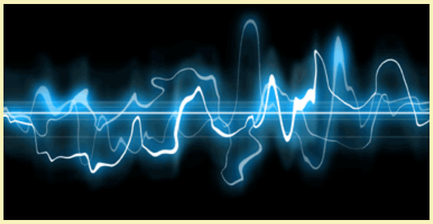
December 13, 2017 - EGARA Annual Holiday Party, 6 pm at Moscatiello's Italian Restaurant, 99 N Greenbush Road, Troy

January 6, 2018 - FCC VE Exam Session, East Greenbush Community Library at 10am

January 10, 2018 - EGARA Monthly Membership Meeting, Masonic Temple, 7 pm.

May 12, 2018 - EGARA Hamfest 2018 - 8 am to 1 pm at the East Greenbush Fire Department.

Pro Tip: Tracking Down RFI



Radio Frequency Interference can be a real headache for Amateur Radio. It can create background noise so intense that even local contacts can be hard to copy -- and make DX all but impossible. RFI can also be hard to track down, but here's a quick list of things to check:

- Loose or poor electrical connections within distribution and building electrical systems.
- Poorly designed or manufactured consumer electronics which may be in violation of Federal Communications Commission part 15 rules.
- Plasma TV's
- Lighting and lamp Dimmers
- Electric Motors
- Indoor high power grow lighting systems
- Aquarium Heaters
- Door Bell Transformers
- Older Compact Fluorescent Lamps
- Floor Heaters
- Neon Signs
- Electric Fences
- Power Tools
- Poorly designed power supplies

For Sale

- ***Kenwood TS-480 Hf Rig*** – 200 w PEP output, w/ manual, cable, and microphone – like new - $700 obo; Contact: Steve Van Sickle, WB2HPR, by phone at ***326-0902***.
- ***NYE Tuner Model MB 5-A*** - 3KW - $300.00
- ***HEATKIT DX 35 Transmitter*** - AM & CW with VFO - $ 125.00 - For two items above contact: Tom Scorsone at KC2FCP@nycap.rr.com

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Looking to Buy, Sell or Swap?
Send your info to W2RBJ@outlook.com

Santa Says:

Don't Forget to RSVP for
EGARA's Annual Holiday Party!
December 13th at 6 pm
Moscatiello's Italian Restaurant
99 N Greenbush Rd, Troy

Email W2RBJ@outlook.com by 12/8

The East Greenbush Amateur Radio Association

Organized in 1998, by Bert Bruins, N2FPJ, (Silent Key) and Chris Linck, N2NEH, the East Greenbush Amateur Radio Association, an ARRL affiliate, is committed to providing emergency services, educational programs, and operating resources to the amateur radio operators and residents of the Capital Region of New York State. The club station is W2EGB. The club also has several VHF and UHF repeaters open to club members and the public.